Data sheet

HP Z420 Workstation

Performance you want. Value you need.

HP recommends Windows.

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Maintain professional expandability in an accessible, tool-free mini-tower form factor—all at a great price. With support for next-generation Intel® Xeon® processor families, the latest graphics technology, and increased I/O expandability, the HP Z420 has the power you need to get the job done.

Intelligent, business-forward design.

Quickly and easily swap out parts or make upgrades on your own. The HP Z420 Workstation features a smart chassis design built for tool-less access to the inside and easy configurability. With optional liquid cooling, your workstation is designed for whisper-quiet performance and a smooth, daily work flow.[1]

Maximum performance.

Bring power and performance to the next level with the all new E5-1680 v2 8-core processor and Intel® C602 chipset.[2] Achieve up to an 86% increase in memory bandwidth over previous generation HP workstations.[3] Support up to 64 GB of the latest generation of system memory with 8 DIMM slots and integrated 1866 MHz DDR3 memory subsystem.[4] Take advantage of a 600 W 90% efficient power supply ideal for high-end graphics and GPU compute solutions. Connect in a flash with 4X USB 3.0 bandwidth on an optional high-performance Thunderbolt™ 2.0 port[5] on the HP Z420.

Customized to work for you.

Built to support next generation PCIe Gen3 graphics, the HP Z420 currently offers a breadth of AMD and NVIDIA professional graphics card options from Pro 2D to high-end 3D, up to the NVIDIA Quadro 6000.[1] Access high-performance applications, including 2D and 3D video, on-site or from a remote location with HP Remote Graphics software.[6] Increase productivity and spread out with the freedom of seeing and doing more all at once with support for multiple displays at peak HD resolutions.[7]

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1. Handle in Top Optical Bay (optional)
2. 3 External 5.25" Bays
3. 15-in-1 Media Card Reader (optional)
4. Power Button
5. Front I/O: 1 USB 2.0, 2 USB 3.0, 1 Headphone, 1 Microphone, 1 1394a
6. Easy-open Side Panel

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Form Factor	Convertible minitower
Available Operating Systems	Windows 7 Professional 32-bit* Windows 7 Professional 64-bit* Windows 8 Pro 64-bit** Windows 8.1 64-bit** Windows 8.1 Pro 64-bit** Windows 8.1 Pro Downgrade to Windows 7 Professional 32-bit† Windows 8.1 Pro Downgrade to Windows 7 Professional 64-bit† HP Linux Installer Kit SUSE Linux Enterprise Desktop 11 (90 day support)

Available Processors[1,8,9,10]

Processor	GHz	Cache	Memory	Cores	Hyper-Threading	Intel® vPro™ Technology	Intel® Turbo Boost Technology[11]
Intel® Xeon® Processor E5-1680 v2	3.0	25 MB	1866 MHz	8	Y	Y	4, 9
Intel Xeon Processor E5-2650 v2	2.6	20 MB	1866 MHz	8	Y	Y	4, 8
Intel Xeon Processor E5-1660 v2	3.7	15 MB	1866 MHz	6	Y	Y	2, 3
Intel Xeon Processor E5-1650 v2	3.5	12 MB	1866 MHz	6	Y	Y	1, 4
Intel Xeon Processor E5-1620 v2	3.7	10 MB	1866 MHz	4	Y	Y	0, 2
Intel Xeon Processor E5-1607 v2	3.0	10 MB	1600 MHz	4	N	Y	N/A
Intel Xeon Processor E5-1620	3.6	10 MB	1600 MHz	4	Y	Y	2,3
Intel Xeon Processor E5-1603	2.8	10 MB	1066 MHz	4	N	Y	N/A

Chipset	Intel® C602 Chipset
Memory[12]	8 DIMM slots; Up to 64 GB (8x8GB) ECC unbuffered DDR3 1866 MHz (600W PSU chassis); Up to 32 GB (8x4GB) ECC unbuffered DDR3 1866 MHz (400W PSU chassis); 4 channels per CPU
Drive Controllers	Integrated 6-channel SATA controller: 2 ports 6 Gb/s + 4 ports 3 Gb/s, RAID 0, 1, 5, 10 capable; Optional SAS controller: LSI 9217 -4i4e 8-port SAS/SATA 6 Gb/s, RAID 0, 1, 10 capable
Storage[13,14]	Up to (4) 3.5-inch 7200 rpm SATA drives: 250, 500 GB, 1, 2, 3 TB, 12 TB max; Up to (4) 2.5-inch 10K rpm SAS drives: 300, 600, 900 GB, 1.2 TB, 4.8 TB max; Up to (4) 3.5-inch 15K rpm SAS drives: 300, 450, 600 GB, 2.4 TB max; Up to (4) 2.5-inch SATA solid state drives: 128, 180, 240, 256, 480, 512 GB, 2 TB max; Up to (1) 2.5-inch SATA self-encrypting solid state boot drive (SED SSD): 256 GB; Up to (1) 2.5-inch SATA self-encrypting hard drive (SED HDD): 1 TB max; Up to (1) SATA self-encrypting solid state drive; 180 GB; Up to (1) PCIe SSD Fusion ioFX 410 GB; Up to (2) PCIe SSD HP Z Turbo Drives 256 GB, 512 GB (1 TB max)*** Note: Fourth 3.5-inch drive occupies one external 5.25-inch bay. Fourth 2.5-inch drive is installed into top optical bay handle.
Optical Storage[15,16]	DVD-ROM, DVD+/-RW DL Super-Multi, Blu-ray Writer, 15-in-1 Media Card Reader
Drive Bays	3 external 5.25-inch bays, 3 internal 3.5-inch HDD bays (4 total when using 5.25-inch bay converters); up to 4 eSATA
Expansion Slots	2 PCI Express Gen3 x16 mechanical/electrical; 1 PCI Express Gen3 x8 mechanical/electrical; 1 PCI Express Gen2 x8 mechanical/x4 electrical; 1 PCI Express Gen2 x4 mechanical/x1 electrical; 1 Legacy PCI
Available Graphics	Professional 2D: NVIDIA® NVS™ 300, NVIDIA® NVS™ 310, NVIDIA® NVS™ 315, NVIDIA® NVS™ 510 Entry 3D: NVIDIA® Quadro® 410, NVIDIA® Quadro® K600, AMD FirePro™ V3900 Mid-range 3D: NVIDIA® Quadro® K2000 High-end 3D: NVIDIA® Quadro® K4000,†† NVIDIA® Quadro® K5000,†† NVIDIA® Quadro® K6000 (AMO only),†† AMD FirePro™ W7000,†† NVIDIA® Tesla™ K20c,†† NVIDIA® Tesla™ K40††
Audio	Integrated Intel/Realtek HD ALC262 Audio; Creative Recon3D PCIe Audio Card; optional HP Thin USB Powered Speakers
Network	Integrated Intel GbE LAN; Optional Intel CT x1 PCIe NIC; Optional Intel Ethernet I210-T1 PCIe NIC; Optional Broadcom NIC; Optional HP 361T PCIe Dual Port Gigabit NIC; Optional HP X520 10GbE Dual Port Adapter; Optional HP 10GbE SFP+ SR Transceiver; Infineon TPM 1.2 Controller; WLAN Intel 7260 802.11 a/b/g/n/ PCIe x 1 NIC
Ports	Front: 2 USB 3.0, 1 USB 2.0, 1 IEEE 1394a standard, 1 microphone in, 1 headphone out Rear: 2 USB 3.0, 4 USB 2.0, 1 IEEE 1394a standard , 2 IEEE 1394b ports via optional add-in PCIe card, 1 audio in, 1 audio out, 1 microphone in, 2 PS/2, 1 RJ-45 to integrated Gigabit LAN, 1 serial via optional adapter, 1 Thunderbolt™ 2 port via optional add-in PCIe card[1,5] Internal: 6 USB 2.0, supports up to three HP Internal USB Port Kits (one two-port kit on each 2x5 header)
Remote Technology	HP Remote Graphics Software (RGS)
Input Devices	PS/2 standard keyboard; USB standard keyboard; USB Smart Card Keyboard; PS/2 optical scroll mouse; USB 2-button optical scroll mouse; USB 3-button optical mouse; USB SpaceExplorer; USB SpacePilot; USB Laser Scroll Mouse
Dimensions (H x W x D)	17.63 x 7.0 x 17.5 in (44.76 x 17.78 x 44.52 cm)
Power Supply	600-Watt 90% efficient power supply or 400-Watt 90% efficient power supply
Compatible Displays (screen size diagonally measured)	HP DreamColor LP2480zx Professional Display, HP Z Display Z30i 30-inch IPS Display, HP Z Display Z27i 27-inch IPS Display, HP Z Display Z24i 24-inch IPS Display, HP Z Display Z23i 23-inch IPS Display, HP Z Display Z22i 21.5-inch IPS Display
Warranty[17]	Limited three-year Mon-Fri 8-5 next business day, parts, labor and 24x7 phone support, terms and conditions may vary. Extendable up to five years.

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Screen images courtesy of Autodesk

* This system may require upgraded and/or separately purchased hardware to take full advantage of Windows 7 functionality. Not all features are available in all editions of Windows 7. See microsoft.com/windows/windows-7/ for details.

** Not all features are available in all editions of Windows 8 and 8.1. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows 8 and 8.1 functionality. See www.microsoft.com.

*** Each drive requires a PCIe x4 (minimum)

† This system is preinstalled with Windows 7 Pro software and also comes with a license and media for Windows 8.1 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

†† Supported only in the Z420 600W power supply chassis.

1. Sold as an optional or add on feature.
2. Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers, and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations.
3. Up to 86% increase in available memory bandwidth can be achieved on the Z420 over the Z400 on optimized configurations with memory distributed across all channels using 1,333 MHz memory speed on the Z400 and 1,866 MHz memory speed on the Z420. This does not imply an 86% increase in performance.
4. Maximum memory capacities assume Windows 64-bit operating systems or Linux. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.
5. Thunderbolt™ 2 is available via an optional add-in card. Thunderbolt is new technology. Thunderbolt cable and Thunderbolt device (sold separately) must be compatible with Windows. To determine whether your device is Thunderbolt Certified for Windows, see thunderbolttechnology.net/products.
6. HP Remote Graphics Software requires Windows and an internet connection.
7. Support for external displays as a standard feature through integrated processor-based graphics is dependent upon the particular workstation configuration; the actual number of displays supported will vary. An optional graphics solution will be required for the support of additional displays. Additional cables required. HD (high-definition) content required to view HD images.
8. 64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. See intel.com/info/em64t for more information.
9. Intel's numbering is not a measurement of higher performance.
10. Although the Intel Xeon E5-2600 processor family supports dual processors, the HP Z420 Workstation does not support dual processor configurations.
11. The specifications shown in this column represent the following: (all core maximum turbo steps, one core maximum turbo steps). Turbo boost stepping occurs in 100MHz increments. Processors that do not have turbo functionality are denoted as N/A. Intel® Turbo Boost technology requires a PC with a processor with Intel® Turbo Boost capability. Intel® Turbo Boost performance varies depending on hardware, software, and overall system configuration. Please visit intel.com/technology/turboboost for more information.
12. Each processor supports up to 4 channels of DDR3 memory. To realize full performance at least 1 DIMM must be inserted into each channel.
13. SATA hardware RAID is not supported on Linux systems. The Linux kernel, with built-in software RAID, provides excellent functionality and performance. It is a good alternative to hardware-based RAID. Please visit h20000.www2.hp.com/bc/docs/support/SupportManual/c00060684/c00060684.pdf for RAID capabilities with Linux.
14. For hard drives and solid state drives, GB=1 billion bytes. TB= 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB is reserved for system recovery software.
15. Actual speeds may vary. Does not permit copying of commercially available DVD movies or other copyright protected materials. Intended for creation and storage of your original material and other lawful uses. Note that DVD-RAM cannot read or write to 2.6 GB Single Sided/5.2 GB Double Sided – Version 1.0 media.
16. As Blu-ray is a new format containing new technologies, certain disc, digital connection, compatibility and/or performance issues may arise, and do not constitute defects in the product. Flawless playback on all systems is not guaranteed. In order for some Blu-ray titles to play, they may require a DVI or HDMI digital connection and your display may require HDCP support. HD DVD movies cannot be played on this workstation.
17. HP Care Pack Services extend service contracts beyond the standard warranties. Service starts from date of hardware purchase. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at hp.com/go/lookuptool. Additional HP Care Pack Services information by product is available at hp.com/go/carepack. Service levels and response times for HP Care Packs may vary depending on your geographic location.

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